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with the xylem vessels, and by the "cortical roots" that traverse the "soft bark." An interesting description is given of the behavior of these digesting roots ("sinkers") in penetrating tissue, and in sending out lateral outgrowths ("cortical roots") which spread extensively through the cortex of the host and in turn give rise to other "sinkers" that connect with the xylem. The first infection of a tree is brought about by birds, and the subsequent spread of the parasite is caused by the falling or washing of berries upon other parts of the host. The seed and seedling exhibit unusual resistance to desiccation, and so survive the more or less prolonged period of establishment, a period which may extend beyond the first growing season. A tree may become affected at any point where living tissue is exposed or covered only by a thin layer of cork with lenticels, but the most vulnerable points are the young branches, and sometimes the buds. Various suggestions are made as to the treatment of trees subject to the attacks of this parasite.—J. M. C.

Latex.—Miss DIANA BRUSCHI has made a study of the latex of five species of Euphorbia and three of Ficus,²⁰ in an endeavor to clear up in a measure the contradictory results of various investigators, of which the two most recent studies by MOLISCH (1901) and KNIPE (1905) are characteristic. Dr. BRUSCHI finds that the quantity of latex, its pressure, and its aspect vary with the season in the figs, *Ficus Carica* and *F. pseudocarica*, but not the euphorbias. Of the components of the latex the proteins vary in quantity with the season in the two figs named, in which they are abundant; but they are scant in *F. elastica* and the euphorbias. The fats are without doubt the most important plastic components and they clearly follow the variations in photosynthesis. The starch remains an enigma. Reducing sugars increase a little in *F. Carica* and *F. pseudocarica* but change little in the others. On the whole Miss BRUSCHI upholds MOLISCH's view of the latex as a cell sap circulating in a living plasma sac, which is not entirely aplastic. Inasmuch as it contains many substances easily utilizable as foods, the utilization of these foods is correlated with the activation and activity of the related enzymes. The ready use of the fats is certain, and they are the principal if not the only plastic material; the indifference of the starch is supposed to be due to the lack of an amylase energetic enough to attack it. As the latex tubes run usually in the midst of organs well supplied with foods by photosynthesis, their content is yielded only when all other foods are exhausted.—C. R. B.

Rhizoids of liverworts.—WEINERT has investigated the growth and tropisms of the rhizoids of *Marchantia* and *Lunularia*.²¹ He finds that light promotes the formation of rhizoids from gemmae, and is quite indispensable for the development of the divergent rhizoids of the thallus; further, only a few of the appressed

²⁰ BRUSCHI, DIANA, Contributo allo studio fisiologico del latice. *Annali di Botanica* 7:671-701. 1909.

²¹ WEINERT, HANS, Untersuchungen über Wachstum und tropistische Bewegungserscheinungen der Rhizoiden thallöser Lebermoose. *Bot. Zeit.* 67¹:201-230. *figs.* 11. 1909.